



## PRODUCT SPECIFICATION

### MIL7300 Specification – Multi-Channel Transmitter (API670 Compliant)

The Mechanalysis-Multi-Channel Transmitter is based on the 19" Rack, API670 architecture for Vibration or Turbine Supervisory applications. The model MIL7300 is an economic solution where high concentrations of machinery signals are require warning and trip relays along with 4-20mA output to the DCS or PLCs.

The MIL7300 system evolved from highly proven model MIL8700 API670 Protection Monitor that has given unrivalled reliability since initial launch in 1987. Due to user demands, the MIL7300 takes advantage of a proven design by offering a 'blind version for only signal transmission. The MIL7300 Multi-Channel Transmitter reduces the need for costly panels or cabinets or where single and two channel transmitters with their individually enclosures and need consolidating in a marshalling cabinet. It takes advantage of proven signal processing modules enabling each channel to be configured. High and low pass filtering is also available for specific applications. Vibration input signals can be an inductive velocity, accelerometer, eddy current or TSI sensor.



The MIL7300 Transmitter consists of a Main Rack Frame, panel housing up to eight modules from a wide selection of sensor inputs and ranges. When loaded with up to eight dual channel modules a maximum of 16 measurement channels are available. Industry standard 4-20mA DC or RS485/MODBUS. signal output is provided for interfacing with Distributed Control Systems (DCS). Barrier-type terminal strips for external wiring are located at the rear. Input signals are continuously monitored to ensure that the sensors, interconnecting cables and modules are functioning.

The multi-channel transmitter comes standard with an isolated 4-20mA output for each measurement channel. If signals are required for both for the Chart Recorder and DCS then a dual channel isolated output will be an optional extra.

Sealed electromagnetic relays are fitted in the Main Rack Frame for common Alarm, Trip and Circuit Fault functions. Reed relay contacts provide individual Alarm and Trip per module. Higher relay contact ratings of 5A resistive at 230VAC are available with the optional Relay Expander Module.

The Control Module Panel contains a Power 'ON' LED indicator, Start-up Attenuation, Trip Override LED indicator and a Circuit Test switch. The standard Main Rack Frame has a concealed trip override switch for use by service personnel.

An integral Switch Mode Power Supply (SMPS) located at the rear provides DC power for the modules and associated transducers. The unit copes ably with most power supply inputs as well as variations in the mains supplies.

### SYSTEM OPTIONS

The MIL7300 Machinery Protection System offers a range of customised solutions. These are:

- Panel for Vibration Monitoring System or for Turbine Supervisory System (TSI)
- Panel for Digital Panel Meters (DPM)
- DPM's for remote and local panel indication
- Power Supply for redundancy  $\pm 24V$  DC SMPS
- Current Isolators
- Un-interrupted Power Supply (UPS)
- Recorders (includes paperless recorder)
- Signal Transmitter for MIL544M Sensor (for distance exceeding 330m)
- Junction Boxes (IP55 and IP65 protection)
- Wireless Transmission system for Analog / Digital data
- RS485 connectivity for DCS and SCADA. The Vibration Signals are converted to 0-5V DC.
- MODBUS interface
- Explosion proof boxes for sensor mounting in hazardous areas

In addition to the above options Mechanalysis has considerable expertise in designing customised mounting brackets for TSI applications. In particular, plant Renovation & Modernisation (R&M) projects.



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### AVAILABLE MACHINERY PROTECTION MODULES:

The table below summarises the Model numbers: e.g. MIL7320 Module series for vibration and turbine supervisory, designed to meet API670 for on-line machinery protection, covers a suite of modules providing a comprehensive range of sensor inputs, measured units and optional ranges. Proposals will specify the part number to meet the end user's specific requirements.

Models	FUNCTION	Chls	Sensors	UNITS
MIL7320	Vibration Displacement & Velocity	2	Velocity Sensor Accelerometer ECP	microns Pk-Pk mm/sec Pk g Pk
MIL7330	Axial Shift	2	ECP	mm
MIL7340	Cam Valve	2	Rotary Potentiometer	% User Defined
MIL7350	Differential Expansion	2	ECP	mm
MIL7360	Eccentricity	2	ECP	microns Pk-Pk
MIL7370	Other Parameters	2	4 - 20mA DC	User Defined
MIL7380	Shell Expansion	2	LVDT	mm
MIL7390	Speed Monitor	2	ECP User Defined	RPM

### SPECIFICATION OF MODEL 7300 MAIN RACK WITH POWER SUPPLY

Part Number M7300 or M73004

#### Construction

Designed to meet API670 for on-line machinery protection, the model MIL7300 has a rugged construction with top and bottom aluminium extruded channels and ABS press fitted guides maintain module / connector alignment. Extruded aluminium frame members and substantial formed aluminium structural parts. Conduit entry holes at the base provide easy access for installation and wiring. The epoxy-glass circuit boards with gold plated connector contacts, all solid-state circuitry and virtually wire-free modular assembly enhances reliability.

#### Channels

The Model MIL73001 19" Rack accepts 8 Single or Dual Channel Modules giving a total 16 channels of measurements. The MIL73004 10" Rack accepts 4 single or Dual Channel Modules giving 8 channels of measurements per rack.

#### Common Alarm Relay

Electromagnetic Common Alarm Relay operates when any module alarm occurs. One change-over (SPDT) potential free contacts rated at 5A resistive @ 230V AC are provided, normally de-energized (non fail safe), field changeable to normally energize (fail safe). Reset is manual and is actuated only when the signal level goes below the pre-set alarm level.

#### Common Trip Relay

Electromagnetic Common Trip Relay operates when any module trip occurs. Two change-over (DPDT) potential free contacts rated at 5A resistive @ 230V AC are provided, normally de-energized (non fail safe), field changeable to normally energize (fail safe). Reset is manual and is actuated only when the signal level goes below the pre-set trip level.

#### Common Circuit Fault Relay

Electromagnetic Common Trip Relay operates when any circuit fault is detected by Module "OK" light circuits. One change-over (SPDT) potential free contacts rated at 5A resistive @ 230V AC are provided, normally de-energized (non fail safe), field changeable to normally energize (fail safe). Reset is automatic when fault condition returns to normal.



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### Remote Reset

Alarm and trip relays may be reset using contacts connected to Remote Reset Terminals.

### Test

A spring loaded Test Switch on the Control Module front panel is provided to check the healthiness of the individual modules for which internally generated test signal is applied to all the modules. Relays are automatically deactivated during the test.

### Trip Override

Concealed toggle switch located at rear of main rack frame inhibits common Trip Relay during servicing or troubleshooting. Flashing red front panel indicator advises operatives.

### Start-up Attenuation

Start-up control bus activates attenuator in all modules equipped with this feature in response to users control switch. Control panel LED lamp indicates that start-up function is activated.

### Power Supply

90 – 270V AC, 50Hz, single phase, 200 watt.  
 SMPS power supply furnishes  $\pm 24$  volt power to monitor modules.

### Wiring

Barrier terminal strips for all external wiring. Conduit holes are provided on Main Rack Frame

### Environmental

Storage temp: - -18°C to 65°C  
 Operating temp: - 0°C to 50°C ambient  
 Humidity - 95% none condensing  
 Type Tests - Comprehensive range ask for current certifications

### Weight & Dimensions

Rack & Power Supply - 6.8 Kg  
 Module - 2 Channels - 0.45 Kg  
 Rack with 8 modules - 10.0 Kg  
 Dimensions:  
 - P/N MIL87001 - 482mm (W) x 177mm (H) x 355mm (H)  
 - P/N MIL87004 - 254mm (W) x 177mm (H) x 355mm (H)

### Type Tests

- All primary type tests have been passed for the MIL8700 that applies to MIL7300system

Mechanalysis (India) Ltd. continuously improves products; it therefore retains the right to change the above specification without notice

For further details contact Mechanalysis (India) Ltd at any of the Branches below:

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